POLICY EVOLUTION OF SOLID WASTE MANAGEMENT IN MALAYSIA

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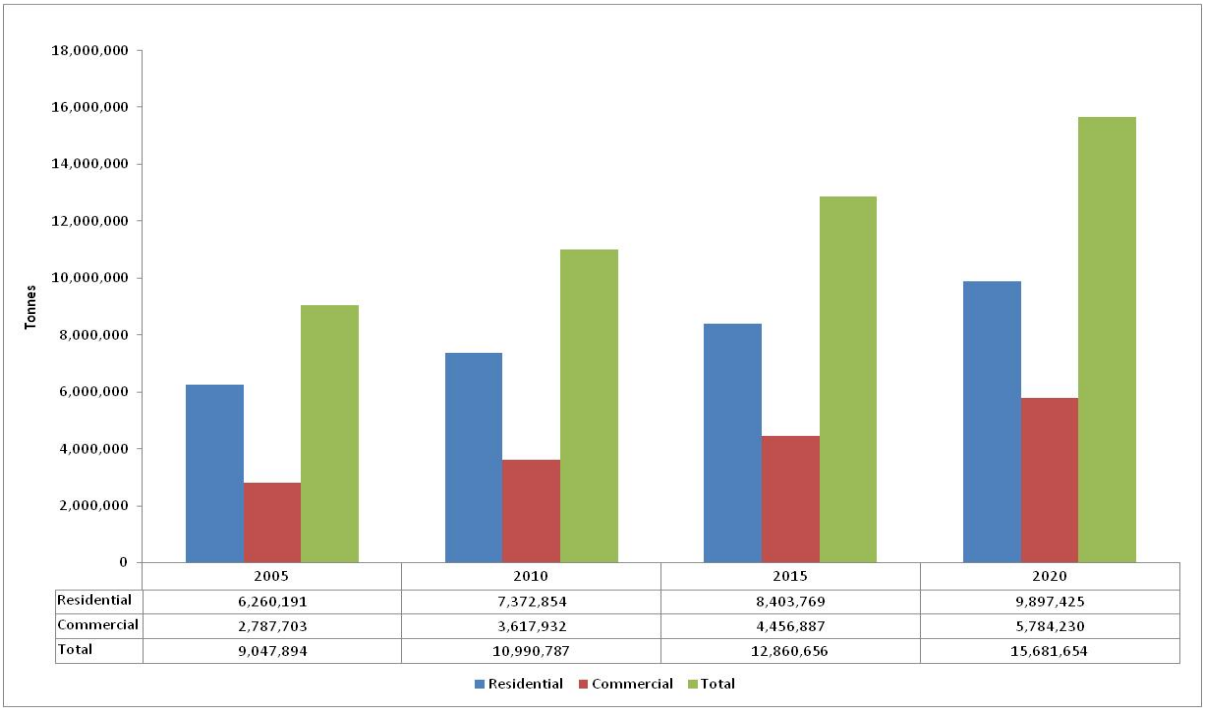
EXECUTIVE SUMMARY

This paper seeks to examine the policy evolution of solid waste management in Malaysia and to determine its challenges and opportunities by assessing policy gaps, trends and stakeholders perception of solid waste management in Malaysia. Malaysian solid waste generation has been increasing drastically where solid waste generation was projected to increase from about 9.0 million tonnes in 2000 to about 10.9 million tonnes in 2010, to about 12.8 million tonnes in 2015 and finally to about 15.6 million tonnes in 2020 though national recycling rate is only about 3-5 %. This projected increasing rate of solid waste generation is expected to burden the country's resources and environment in managing these wastes in a sustainable manner. Solid waste management policies in Malaysia has evolved from simple informal policies to supplementary provision in legislation such as the Local Government Act, 1976 and the Environmental Quality Act, 1974 to formal policies such as the National Strategic Plan for Solid Waste Management (NSP) 2005, Master Plan on National Waste Minimization (MWM) in 2006, National Solid Waste Management Policy 2006 and the Solid Waste and Public Cleansing Management Act (SWMA) 2007. Policy gap analysis indicates challenges in the area of policy implementation potentially due to lack of political will, weak stakeholder acceptance and policy impracticality due to direct adoption of policy practices from developed countries while potential opportunities are in the area of legislation for mandatory recycling and source separation as well as government green procurement initiatives. In conclusion, policy evolution of solid waste management in Malaysia may be shifting from a focus on basic solid waste management issues of proper collection, disposal and infrastructure requirements towards sustainable waste management.

Keyword: Malaysia, solid waste, solid waste management, policy, evolution.

INTRODUCTION

Malaysian solid waste generation and management has become a national concern due to the ever increasing rate of solid waste where the total solid waste generation inclusive of households and business premises is estimated to increase from about 9.0 million tonnes/year in 2000 to about 10.9 million tonnes/year in 2010, to about 12.8 million tonnes/year in 2015 and to about 15.6 million tonnes/year in 2020. The projected waste generation rates indicate that solid waste will increase by about 43% within 2010 - 2020 (MHLG, 2006) (Figure 1). The main component in Malaysian solid waste is organic waste which contributes approximately 45% of the total waste stream followed by 24% plastics, 7% of paper, 6% metal, 3% glass and 15% other waste (EPU, 2005) (Figure 2). The projected increase in the generation of solid waste in Malaysia is expected to burden the country's resources and infrastructure in managing these wastes in a sustainable manner as the number of landfills and illegal dumpsites in Malaysia has increased from 230 sites in 1990 to about 270 sites in 2010 (DWSM 2011).



	2005	2010	2015	2020
Residential	6,260,191	7,372,854	8,403,769	9,897,425
Commercial	2,787,703	3,617,932	4,456,887	5,784,230
Total	9,047,894	10,990,787	12,860,656	15,681,654

Figure 1: Estimated Solid Waste Generation 2005-2020

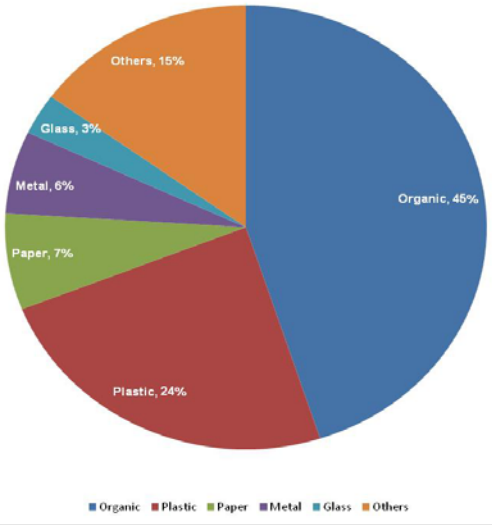


Figure 2 : Malaysian Solid Waste Composition 2005-2020

EXISTING MALAYSIAN SOLID WASTE MANAGEMENT POLICIES

The increasing solid waste generation in the country has been a driver behind the development of solid waste management (SWM) policies in Malaysia. These policies have evolved from simple informal policies to the Action Plan for a Beautiful and Clean Malaysia (ABC) in 1988, the National Strategic Plan for Solid Waste Management (NSP) in 2005, the Master Plan on National Waste Minimization (MWM) in 2006, the National Solid Waste Management Policy in 2006, the Solid Waste and Public Cleansing Management Act (SWMA) in 2007, the Solid Waste Corporation Strategic Plan (2009-2013) and finally to the Tenth Malaysian Plan (2011-2015) which has articulated the Malaysian government's commitment to sustainable waste management (Figure 3).

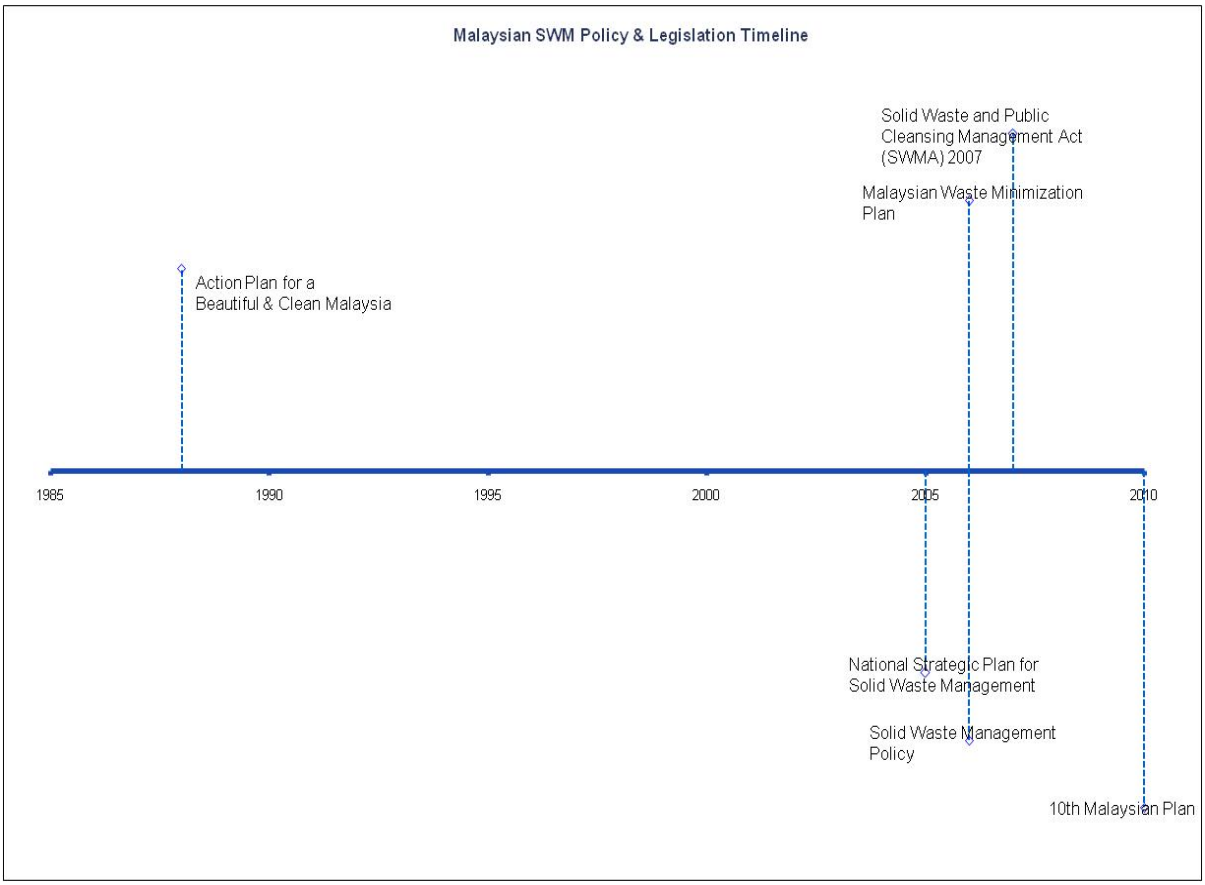


Figure 3 : Malaysian SWM Policy Evolution Timeline

Action Plan for a Beautiful and Clean Malaysia (ABC)

The Ministry of Housing and Local Government (MHLG) in 1998 formulated an Action Plan on Municipal Solid Waste Management or also known as an Action Plan for A Beautiful and Clean Malaysia (ABC). The proposed national policy by ABC was formulated with the aim to produce a national uniform municipal solid waste system that was productive, environmentally sound and socially acceptable in Malaysia by the year 2010. The ABC policy was not officially endorsed by the National Council for Local Government as well as implemented completely. The ABC is considered to have been succeeded by the National Strategic Plan on Solid Waste Management in Malaysia, officially adopted in 2005. Nevertheless the ABC policy was not officially endorsed by the National Council for Local Government as well as implemented completely and is considered to have been succeeded by the National Strategic Plan on Solid Waste Management in Malaysia officially adopted in 2005.

National Strategic Plan for Solid Waste Management in Malaysia (NSP)

The National Strategic Plan for Solid Waste Management (NSP) was formulated in 2002 and adopted in 2005 by the Government of Malaysia (GOM) and provides the basis for SWM policies and measures in Peninsular Malaysia until 2020. The NSP proposed six strategies to guide solid waste legislative, institutional and infrastructural planning and management in Malaysia including an Action Plan to act as a road map for the implementation of the NSP. Finally the NSP established a target of 22% for reduction and recovery and a target of 100% for urban source separation by 2020. The NSP provided the framework for the development of the SWM Legislation, SWM Master Plans, Waste Minimization Master Plans and the SWM Facilities Master Plans. However, some elements of the NSP may need to be reviewed and updated due to the gazetment of the Solid Waste and Public Cleansing Management Act (SWMA) in 2007 as well as taking into consideration the current SWM situation and institutional structure where the NSP is expected to be revised in the near future.

Master Plan on National Waste Minimization (MWM 2006)

The Master Plan on Waste Minimization (MWM) was launched in 2006 with the objective to provide Vision, Strategies and Roles of Stakeholders to minimize the amount of solid waste disposed in Malaysia. The Vision of the WMP is "To realize a Material Cycle Society, where waste minimization activities are systemized and sufficiently enrooted in the behavior of government, private sector, and the people in Malaysia". The MWM outlined waste minimization strategies, action plans for Federal Government, action plans for the local authorities and pilot projects including the preparation of guidelines on waste minimization. The MWM was launched in 2006 and is the main detail waste minimization policy document in Malaysia. The MWM is in the process of formulating and implementing its action plans and pilot projects in Malaysia where one of its targets is to achieve a 11% recycling rate in 2010.

National Solid Waste Management Policy (2006)

The National Solid Waste Management (SWM) Policy is aimed at establishing an integrated solid waste management system that is comprehensive, cost effective, sustainable and accepted by the public, emphasizes environmental protection, selective of affordable technologies and ensure the public health. The SWM Policy has provisions for 3R where it states that the implementation of the Policy will be through the waste management hierarchy with emphasis on waste reduction through 3R activities, intermediate treatment and final disposal. The SWM Policy forms the basis for SWM in Malaysia in terms of its objectives and key thrusts which are expected to be translated into SWM strategic initiatives.

Solid Waste and Public Cleansing Management Act (SWMA 2007)

The SWMA 2007 regulates the management of solid waste and public cleansing to ensure the maintenance of proper sanitation in Peninsular Malaysia and the Federal Territories of Putrajaya and Labuan. The SWM Act includes the term controlled solid waste to denote the source of the waste and defines solid waste as scrap material or other unwanted surplus substance or rejected products arising from the application of any process but excludes scheduled waste, sewage and radioactive waste. The SWM Act defines recycling as to collect and separate solid waste for the purpose of producing products. The SWM Act has provisions for 3R where it specifically is empowered in terms of waste minimization and 3R activities. The SWMA 2007 was gazetted on 30th August 2007 and until today has not been enforced due to a lack of supporting regulations. Currently, there are no regulations which have been enacted under the SWM Act though a number of regulations are still in the draft stage and as such are still confidential.

SWM Corporation Strategic Plan (2009-2013)

The SWM Corporation has developed a Strategic Plan (SP) in accordance to its role and responsibility established under the SWM Corporation Act which is to recommend and implement policies, plans and strategies including schemes for SWM. The strategic plan was developed for 2009 to 2013 and identified seven focus areas which includes public awareness programme, monitoring of swm services, environmentally sustainable swm, human resource sustainability, strong financial management, utilization of a comprehensive ICT and requirements to meet customer needs. The SP has provisions for 3R where it aims to achieve an increase in 3R awareness of 30%, a recycling target of 40% and the implementation of a deposit refund system of at least 30 firms by 2013. The SP generally derives its authority and resources from the SWMA 2007 and the Solid Waste and Public Cleansing Management Corporation Act (2007) which in practice has yet to be implemented. Nevertheless, some preparatory aspects of the SP can be implemented while waiting for the respective legislation to be enforced.

Tenth Malaysian Plan (10MP)

The Tenth Malaysian Plan (10MP) is part of Malaysia's five year plans to stimulate the national economy to achieve economic growth and investment. The 10MP a comprehensive blueprint to allocate the national budget from the year 2011 to 2015 to all economic sectors in Malaysia (EPU, 2010). The 10MP similar to its predecessors has provisions for 3R as part of the Malaysian government's strategy for sustainable waste management and includes aspects of Extended Producer Responsibility (EPR) such as take back system for producers and manufacturers as well as deposit refund system (Agamuthu & Dennis, 2011). The 10 MP is in the process of being implemented for the period of 2011-2015.

SOLID WASTE MANAGEMENT POLICY GAP ANALYSIS

A strengths, weaknesses, opportunities and threats (SWOT) analysis on SWM Policy in Malaysia especially in relation to waste minimization (3R) was conducted :-

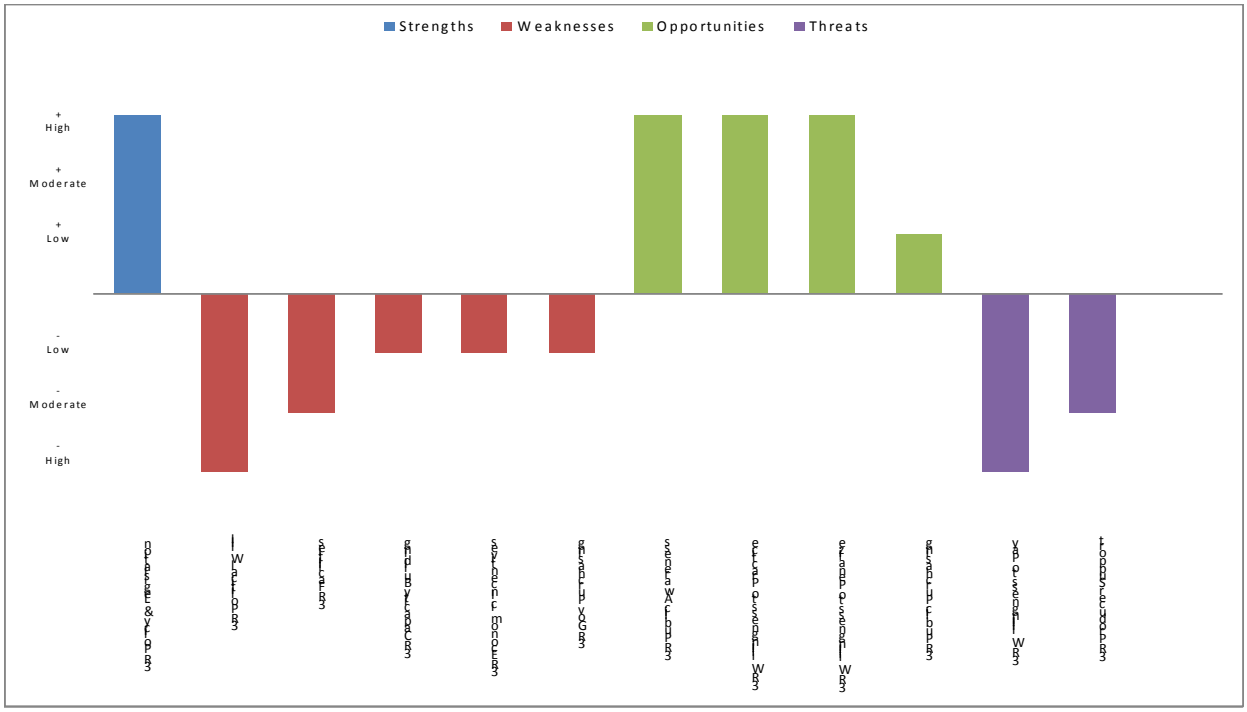


Figure 3 : SWOT Analysis of SWM and 3R Policy Implementation

Strengths

The SWOT analysis indicates that the strengths for SWM and 3R policy implementation are in the area of policy and legislation. The SWOT analysis indicates that the strengths for policy implementation is the existence of formal SWM policy and legislation such as the Action Plan on a Beautiful and Clean Malaysia (1988), National Strategic Plan (2005), the Masterplan on Waste Minimization (2006), solid waste management policy (2006), Solid Waste & Public Cleansing and Management Act (2007), the Solid Waste Management Corporation Strategic Plan (2009) and the 10th Malaysian Plan (2010). The existing of formal policies and legislation provides a national strategic framework for the formulation of the SWM vision, objectives, targets, strategies and programmes. Legislation such as the SWMA 2007 which incorporates at least 11 different provisions for 3R and waste minimization provides the fundamental authority and resources for the implementation of 3R policies in Malaysia. Consequently the existence of 3R policies and legislation for 3R implementation is considered a high enabler for SWM and 3R policy implementation and may indicate policy strength for 3R implementation (Agamuthu et al, 2011a).

Weaknesses

The SWOT analysis indicates that the weaknesses for SWM and 3R policy implementation are in the area of political will for implementation, facilities and infrastructure, capacity for personnel, economic incentives and government purchasing. The first area of potential weakness is in the stakeholder perception of a lack of political will for the implementation of SWM related policies and legislation via the enforcement of these policies and legislation. There seems to be a delay in the formalization of policies via formal endorsements, declaration or enactment of these policies especially the enactment and enforcement of the SWMA 2007 that is expected to set the framework for SWM as well as SWM activities in Malaysia (Agamuthu et al, 2011b). Furthermore, as of June 2011, the SWMA 2007 has not been enforced though a number of regulations are still in the draft stage and as such are still confidential. Consequently the potential lack of political will for policy implementation is considered a high barrier for SWM policy implementation and may indicate a policy gap between the formulation of policies and the political will for its implementation (Dennis, 2001). The second area of potential weakness is in the stakeholder perception of a lack of facilities and infrastructure to enable SWM and 3R effective practices. Consequently the potential lack of facilities and infrastructure for SWM and 3R implementation is considered a moderate barrier for policy implementation and may indicate a policy gap between the policies and the provision of resources for its implementation. The third area of potential weakness is in a lack of SWM and 3R capacity availability of knowledge and training necessary for the effective practice of policies especially for 3R personnel and stakeholders. Generally stakeholder findings indicate that stakeholders were of the opinion that although 3R information is easily available, existing awareness and level of education is important for the implementation of SWM and 3R policies where technical staff should be provided technical training. Consequently the potential lack of capacity building for SWM and 3R personnel is considered a low barrier for policy implementation and may indicate a policy gap between the policies and capacity building for its implementation. The fourth area of potential weakness is in the stakeholder perception of a lack of SWM and 3R economic incentives for policy implementation. Generally stakeholder findings indicate that stakeholders were of the opinion that current government funding for recycling was insufficient and that recycling requires financial incentives. Consequently the potential lack of economic incentives for SWM and 3R activities is considered a low barrier for policy implementation and may indicate a policy gap between the policies and the economic instruments to encourage implementation.

The final area of potential weakness is in the stakeholder perception of a lack of SWM and 3R government purchasing of recycled products as a means to support the recycling market. Generally stakeholder findings indicate that stakeholders were of the opinion that recycling can be increased if government agencies were to use recycled products as the government can be then the largest market for recycled products and hence drive the recycling initiative. Consequently the potential lack of government purchasing of 3R products is considered a low barrier for policy implementation and may indicate a policy gap between the policies and the integration with cross sectoral national policies.

Opportunities

The SWOT analysis indicates that the opportunities for policy implementation are in the area of Policy Awareness, Willingness to Practice and Willingness to Penalize. The first area of potential opportunities is in stakeholder feedback on the level of policy awareness. Generally stakeholder findings indicate that stakeholders had a moderate to high level of awareness on SWM and 3R policies including the SWMA 2007. Consequently the existence of policy awareness is considered a high enabler for policy implementation and may indicate a policy opportunity for 3R implementation. The second area of potential opportunities is in stakeholder feedback on the willingness to practice 3R activities such as source separation and recycling. Generally stakeholder findings indicate that a majority of stakeholders were willing to practice source separation. Consequently the existence of 3R willingness to practice is considered a high enabler for 3R policy implementation and may indicate a policy opportunity for SWM policy implementation.

The third area of potential opportunities is in stakeholder feedback on the willingness to penalize individuals who refuse to recycle as well as making recycling mandatory. Generally stakeholder findings indicate that almost a 100% of stakeholders were willing to make recycling mandatory where a majority of stakeholders believed that individuals who refuse to recycle should punished severely but were also of the opinion that voluntary public participation in recycling would be better. Stakeholders' willing to embrace mandatory recycling and penalize non-compliance indicates a high possibility that stakeholder will be willing to accept the implementation and enforcement of the SWMA 2007. Consequently the existence of willingness to penalize is considered a high enabler for policy implementation and may indicate a policy opportunity for 3R implementation. The final area of potential opportunities is in the public feedback on the willingness to purchase recycled products. Generally public findings indicate that a majority of the public stakeholders were agreeable on the provision for products to be labeled with recycling codes and also responded that this would improve recycling practices. Consequently the existence of willing for public purchasing of recycled products is considered a low enabler for policy implementation and may indicate a policy opportunity for SWM policy implementation.

Threats

The SWOT analysis indicates that the threats for policy implementation are in the area of Willingness to Pay and Producer Support. The first area of potential threats is in stakeholders' feedback on the willingness to pay for better recycling services. Generally findings indicate that a majority of public were not willing to pay for better recycling services. One of the likely consequences of the implementation of the SWMA 2007 is the potential increase of charges and fees for solid waste management in the long term including recycling services to finance the additional infrastructure, facilities and personnel. Consequently the lack of willing to pay is considered a high barrier for policy implementation and may indicate a policy gap in public engagement and public participation for SWM and 3R implementation.

The second area of potential threats is in stakeholders' feedback on the level of producer and manufacturer support for 3R and recycling. Generally stakeholder findings indicate that a majority of stakeholders had the perception that support from producers and the industries were low. Support from producers and the industries is necessary to ensure that SWM and 3R strategies such as the deposit refund system and take back system are viable including reducing waste in the product design stage. Consequently the lack of producer support is considered a moderate barrier for policy implementation and may indicate a policy gap in engaging producers and industries to support SWM and 3R implementation.

CONCLUSIONS

The Malaysian policy analysis generally indicates that solid waste management policies are evolving from simple informal SWM policies to comprehensive waste minimization (3R) policies and finally to potentially advanced sustainable waste management policies involving elements of EPR. The policy analysis also indicates that the main strength for the Malaysian SWM policies is the existence of formal policies and legislation in Malaysia namely the SWMA 2007. However there are also weaknesses such as the lack of political will for policy implementation followed by lack of facilities, capacity building, economic incentives and government purchasing of recycled products. Some of these weaknesses outweigh the strength for SWM policy implementation which is the existence of formal policies and legislation. Opportunities for SWM policy implementation exists in the form of high level of awareness followed by a strong willingness for source separation, mandatory recycling laws and purchasing of recycled products while threats are in the form of lack of willingness to pay for better recycling services and a lack of support from the producers and industries.

The implications of these findings on SWM policy implementation are that policy makers should consider matching SWM policy strengths with SWM policy opportunities to obtain maximum policy implementation advantage. This entails the soonest implementation and enforcement of the SWMA 2007 and the related SWM policies especially in the area of mandatory source separation and recycling as well as implementing initiates for recycled product labeling and marketing. This matches the SWM policy strengths in policy and legislation with the potential opportunities in mandatory source separation, recycling and purchasing of recycled products as indicated by the stakeholders willingness to practice 3R, willingness to penalize 3R non-compliance and willingness to purchase recycled products.

Furthermore policy makers should consider converting SWM policy threats into SWM policy opportunities to neutralize or minimize existing policy threats. This entails a more cautious approach towards implementing SWM related charges and fees as well as proactively engaging the producers and industries for SWM strategies including EPR initiatives. This potentially converts threats such as charges, fees and producer/industry lack of participation into a stakeholder participation and consensus building exercise for SWM policy implementation as well as minimizes SWM policy implementation of being resisted or rejected. In conclusion, policy evolution of solid waste management in Malaysia may be shifting from a focus on basic solid waste management issues of proper collection, disposal and infrastructure requirements towards sustainable waste management.

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